

Horticulture 2007 Newsletter No. 19 May 9, 2007

Heavy Rainfall and Flooding in the Garden



We have seen a great deal of severe weather this past week including flooding. Waterlogged soils push out oxygen that roots need to survive. Every living cell in a plant must have oxygen or it dies. Some plants have mechanisms to provide oxygen to the roots even under saturated conditions but most of our vegetables and flowers do not. The longer these plants are subjected to saturated soils, the more likely damage will occur. However, as long as water drains away within 24 hours, the impact on plant health is minimal.

What about safety regarding eating produce from a garden that has been flooded? Standing water should not cause a safety problem as long as the aboveground portions of the plant remain healthy. Do not use produce from plants that have yellowed. Also, using produce flooded with water contaminated with sewage (lagoon) or animal manure can also be dangerous. The safest approach is to discard all garden crops that have been in contact with such water. Certainly, leafy vegetables should always be discarded. However, you may eat fruit from such crops as tomatoes, peppers, eggplants, sweet corn, squash, cucumbers, and similar vegetables that develops after the waters have subsided as long as the fruit is not cracked or soft.

Soils often become compacted and crusted after a heavy rainfall. This also can restrict oxygen to the roots. Lightly scraping the soil to break this crust will help maintain a healthy root system and therefore, a healthy plant. Be careful not to cultivate too deeply as shallow roots may be damaged. If you think the excessively wet weather will continue, bedding up the rows before planting even just a couple of inches, will improve drainage and allow for better aeration. (WU)

Flooding and Trees



Trees differ markedly in their ability to withstand flooding. Some trees have mechanisms in place to provide oxygen to the roots of plants with water saturated soils and others do not. However, most trees will maintain health if flood waters recede in 7 days or less. It also helps if water is flowing rather than stagnant. If the roots of sensitive trees are flooded for long periods of time, damage will occur including leaf drop, iron chlorosis, leaf curl,

branch dieback, and in some cases, tree death. Another danger of flooding is the deposition of sediment. An additional layer of silt 3 inches or more can also restrict oxygen to the roots. If possible, remove deep layers of sediment as soon as conditions permit. This is especially important for small or recently transplanted trees.

Try to avoid any additional stress to the trees this growing season. Ironically, one of the most important practices is to water trees if the weather turns dry. Flooding damages roots and therefore the root system is less efficient in making use of available soil water. Timely waterings are vital to a tree's recovery. Also be diligent in removing dead or dying branches which may serve as a point of entry for disease organisms or insect pests. The following information came from the US forest Service

Trees Tolerant of Flooding: Can survive one growing season under flooded conditions. Red maple, silver maple, pecan, hackberry, persimmon, white ash, green ash, sweetgum, sycamore, eastern cottonwood, pin oak and baldcypress.

Trees Moderately Tolerant of Flooding: Can survive 30 consecutive days under flooded conditions. River birch, downy hawthorn, honeylocust, swamp white oak, southern red oak, bur oak, willow oak and American elm.

Trees Sensitive to Flooding: Unable to survive more than a few days of flooding during the growing season. Redbud, flowering dogwood, black walnut, red mulberry, most pines, white oak, blackjack oak, red oak and black oak. (WU & CB)

TURGRASS

Too Wet to Mow the Lawn



What do you do when the lawn can't be cut due to constant rain? The best thing to do is to set your mower as high as possible and bring it down in steps. It is always best never to take more than one third of the grass blade off at one time. If more is taken, the plant reacts by using stored energy reserves to quickly send up new growth. This reduces the amount of energy available for the plant to deal with stress or damage done by insects or disease. However, sometimes it is just not possible to keep the "one-third rule." In such cases, cut as

high as possible even though it may mean you are cutting off more than one third of the blade. Bring the height down gradually by cutting more often and at progressively lower heights until you reach the target height. (WU)

Recent Rains Trigger Mushroom Development

The frequent, heavy rains in certain areas of the state have resulted in the appearance of mushrooms in home lawns and landscape beds. Although mushrooms are often spectacular in size and color, most are relatively harmless to the plant life. Some of these mushrooms are associated with arc-like or



circular patterns in turfgrass called fairy rings. The ring pattern is caused by the outward growth of fungal mycelium. The mycelium forms a dense, mat-like structure in the soil that decomposes organic matter. This decomposition releases nitrate into the soil, which in turn stimulates the growth of the grass at the outer portion of the ring. This results in a dark green appearance of the grass at the margin of the ring. Unfortunately, the thick fungal mat formed by the fungus interferes with water infiltration. The fungus may also release certain byproducts that are toxic to the turf. This can lead to dieback of the turf close to the ring. Fairy rings are difficult to control. You can sometimes eliminate the ring by digging to a depth of 6 to 12 inches and 12 inches wide on both sides of the ring, refilling the hole with non-infested soil. Or you can try to mask the symptoms by fertilizing the rest of the lawn so that it is as dark green as the ring. This often isn't a good idea because it tends to promote other turf problems.

Some mushrooms in lawns are not associated with fairy rings. These may be mycorrhizal (symbiotic association with tree roots) or saprophytic (live on dead organic matter such as wood, etc.) in the soil. Because some of these mushrooms are beneficial, you don't really want to kill them. Besides, a fungicide spray to the mushroom itself does little good. Remember the mushroom is simply the fruiting structure of the organism. Most of the fungus is below ground and inaccessible to the chemical. If mushrooms are a nuisance, pick them and dispose of them as soon as they appear. Also remove any sources of large organic debris from the soil. Also, mushrooms tend to go away as soil dries. Patience may be the best control.

Some of the mushrooms in the lawn are edible, but others are poisonous. Never eat mushrooms unless you are sure of their identity. (WU)

ORNAMENTALS

Weird Growth on Pines



We have had so many problems on pines that people are starting to suspect anything out of the ordinary as a possibly serious condition. For example, pines in flower look strange close up and people start to suspect a disease is attacking their tree. It is usually the male flowers that draw notice. Pines are monoecious; that is they have both male and female flowers on the same plant. The male flowers appear as multiple "fingers" that come out all around the stem near the end of a branch. The flowers are tan to brown and often curl somewhat.

Shaking the branch will release a cloud of pollen if the flower is mature. Female flowers look a little like miniature hand grenades and are formed on the tips of some branches. (WU)

PESTS

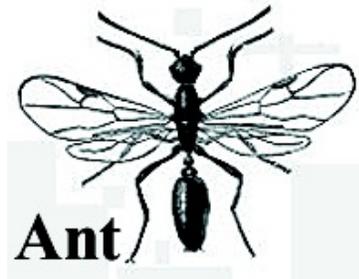
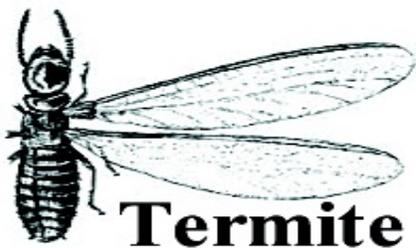


Carpenter Bees

Although carpenter bees look much like bumblebees, they are easy to identify if you know what to look for. Bumblebees have hairy abdomens that are usually yellow and black. Carpenter bees' abdomens are shiny blue-black. Carpenter bees are solitary (do not form colonies) and are

nonaggressive unless provoked. Only the female possesses a stinger. The male may act aggressive but is harmless. Carpenter bees get their name from the ability of the female to bore into wood. Holes are about a half-inch in diameter and may be 6 inches deep. The female then builds six to eight cells off the main tunnel and lays an egg in each. Developing larvae feed off of "bee bread" (pollen and nectar) regurgitated by the female bee. Larvae become adults by late August and September, but do not emerge until the following spring. Individual holes may not cause much damage, but cumulative effects of numbers of bees can weaken structures. Painting wood surfaces can make them less attractive to bees. Stains seem to have little effect. Insecticides, such as Sevin, can be used to treat openings. It is best to treat near sundown when the bees have returned to their tunnel. (WU)

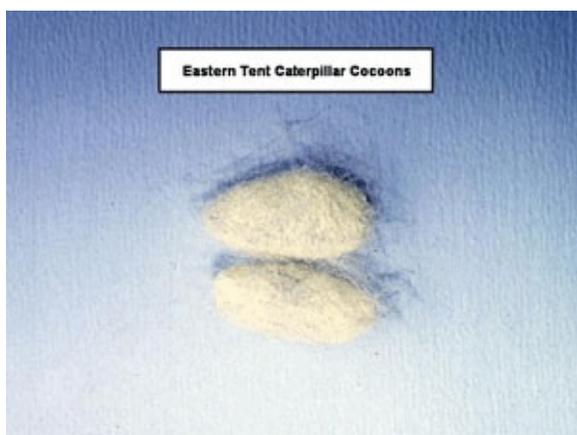
Termites or Ants



Both termites and ants are able to swarm and may have wings during part of their lives. Because these insects are close to the same size, people often misidentify flying ants as termites. Because flying ants do not attack dry wooden structures as termites do, it is helpful to be able to tell the difference.

Fortunately, there are several ways to distinguish between the two. For example, ants have a thin waist; the waist of a termite is thick. Also, ants' antennae are elbowed, while termites' are straight. Thirdly, termites have two pairs of wings that are of equal length. Ants also have two pairs of wings, but of unequal length. Homeowners who find signs of termite activity should shop for a reputable pest control firm. (WU)

European Pine Sawfly and Eastern Tent Caterpillar



The 2007 European pine sawfly and eastern tent caterpillar activities are nearly complete. It is not surprising that the relatively cool April temperatures had little effect on the developmental rates of these two early-season insects. Currently, most matured larvae are leaving their hosts and are wandering about seeking secretive sites to form cocoons within which they will pupate.

Eastern tent caterpillar cocoons appear yellow because of the yellow dust woven into the silken cocoons. Pupation is immediate and relatively rapid, with moths emerging in late May through

mid-June. After mating, females deposit egg masses on twigs. Eggs remain through the summer and survive the winter until larvae emerge in 2008. Egg masses become more detectable after

leaf drop in the fall. This is a good time to prune them out.

Similarly, European pine sawfly form cocoons (sometimes on their host, but more often under debris on the ground beneath the host). However, unlike eastern tent caterpillars, European pine sawfly larvae spend most of the summer in a resting stage before pupating in late August and early September. Adult sawfly begin to emerge in late September. After mating, females insert eggs into pine needles. Eggs overwinter with the next larval hatch to occur in mid to late March of 2008. (BB)

May Beetle/June Beetle Feeding



There have been several reports of May beetles/June beetles causing leaf loss on trees. The stark appearance of defoliated trees raises concern. It is up to the discretion of homeowners whether they opt to apply an insecticide to reduce beetle numbers. It should be noted, however, that their activities are relatively short-lived, and that trees compensate for leaf loss by activating auxiliary buds to produce new foliage. (BB)

FRUIT

Don't Forget About Fruit Plantings



A week or two ago I sent some information about cold damage to fruit buds. There will not be much fruit production this year. But don't forget about those plantings. Water and fertilize as needed. If a disease or insect issue arises, you still might need to protect the foliage somewhat. If plants are left on their own and suffer drought, defoliation from an insect disease, or another such stress, they will not acquire enough carbohydrates to survive next winter. Keep an eye on those plantings even if you won't enjoy fruit from them this summer. (MK)

MISCELLANEOUS

Walnut Wilt



Tomato, potato, blackberry, apple, lilac, asparagus, chrysanthemum, peony and other herbaceous and woody plants can be afflicted with a disorder known as walnut wilt. Other plants, such as black raspberry, corn, bean, carrot, dandelion, and zinnia are resistant. This malady is associated with root uptake of a chemical called juglone that is produced by several species of trees in the walnut family, including black walnut, Persian walnut, butternut, and pecan. Juglone is formed in the leaves, fruit hulls, inner bark, and roots of the walnut and is

leached or released into the soil. This chemical has fungicidal and insecticidal properties. It also is quite toxic to many plant species and induces wilting and stunting. The ability of plants to produce and release chemicals that are toxic to other plants is called allelopathy. The severity of the juglone toxicity partly depends on the proximity of the plants to a walnut tree.

Generally, tomatoes growing next to a walnut tree abruptly wilt and die in early to mid-summer. Those plants growing a short distance away may not be killed but become flaccid and stunted. The woody stem tissue of affected plants turns brown. The symptoms of walnut wilt closely resemble those of *Fusarium* and *Verticillium* wilt, but the disorder may be distinguished from the other wilts by the constant association of walnut trees with the wilting symptoms.

Juglone may be leached from leaves and nuts into the soil during rain or released from roots. The chemical is highly reactive and quickly inactivated in the soil. The major uptake of the toxin occurs when tomato roots make contact with the roots of the walnut.

Tomatoes or other susceptible plants should not be grown near black walnut or other trees that produce juglone. The removal of walnut trees may not have an immediate effect because the toxin can persist in the inner bark of roots for several years. Do not plant tomatoes for at least two years after removing walnuts. (WU)

Poison Ivy Identification and Control



Learning to identify poison ivy is vital if you wish to avoid the rash that accompanies exposure.

Unfortunately, poison ivy can make identification difficult because it occurs in three forms: an erect woody shrub, a groundcover that creeps along the ground, and a woody vine that will climb trees.

When poison ivy climbs, it forms numerous aerial roots that give the vine the appearance of a fuzzy rope. The leaves of poison ivy also vary. Though the compound leaf always has three leaflets, the leaf margins may be toothed, incised, lobed or

smooth. The size of the leaves can also vary, although usually the middle leaflet is larger than the other two. Also, the middle leaflet is the only one with a long stalk; the other two are closely attached to the petiole (leaf stem). The number of leaves gives rise to the saying: "Leaves of three, let it be!" Poison ivy is often confused with Virginia creeper. Virginia creeper, however, has five leaflets rather than three.

There are three methods commonly used to eradicate poison ivy. These include pulling or grubbing out the plants by hand, cutting off the vine, and then treating the regrowth, and spraying the plants directly. The method used depends somewhat on the plant's growth form. If the plant is growing as a groundcover, direct spray or grubbing the plant out is often used. If grubbing, wear gloves and a long-sleeved shirt. The soil must be moist for grubbing to work well. Wash the clothes (and yourself) immediately after you finish. It might also be a good idea to rinse the washing machine. If the plant is in the shrub form, direct spray is the most common control method. If the plant is a woody vine that has climbed a tree, the preferred method is to cut the plant off at the base and treat the sprouts after they emerge. Some triclopyr herbicides also have instructions on treating a freshly cut stump directly.

Herbicides that can be used include glyphosate (Roundup, Killzall Weed and Grass Killer, Nutgrass, Poison Ivy and Vine Killer) or triclopyr (Brush-B-Gon Poison Ivy Killer, Brush Killer Stump Killer). Poison ivy is tough. Repeat applications may be necessary. (WU)

Hosta Virus X



As gardening picks up again after the cold snap, it's time for a reminder about Hosta Virus X (HVX). HVX has been detected recently in several nurseries, garden centers, and big box stores in Kansas. HVX infects many hosta cultivars. There is no cure for HVX. We have detected HVX in the cultivars Golden Tiara, Blue Cadet, Mediovariegata, Sum and Substance, Moerheim, So Sweet, Shade Fanfare, and Striptease.

Symptoms

Symptoms vary by cultivar and time of infection. Some hosta cultivars have natural coloring or striping, so it is important to know what is normal for a given cultivar. The most dramatic and diagnostic symptoms include line patterns (especially along veins), mosaic patterns, blotches, puckering, twisting, or ringspots. The photos show several examples.

However, certain cultivars may only express small necrotic (brown/dead) spots. Some plants may be infected but display no symptoms. This can occur if the plant was infected recently—it can take a year or more for symptoms to develop. In addition, certain cultivars simply do not express symptoms well. These symptomless carriers make preventing spread of this disease more challenging.



Spread

HVX is mechanically transmitted, meaning it can be spread on hands, pruning tools, and by propagation (divisions, etc). It is a good practice to sterilize tools (bleach or alcohol) between plants when pruning or dividing. Accidentally hitting hostas with a lawn mower or weed-whacker might also spread the virus. There is no evidence that insects spread HVX.

Management and Testing

There is no cure for HVX. The best management strategy is to prevent the spread of HVX by avoiding the sale and planting of HVX-infected plants. It is important to remove and destroy infected plants.

Live plant dealers in Kansas that sell hostas should educate employees about this disease. Plants that are suspected to have HVX should be removed from sale. The Diagnostic Lab at K-State has acquired materials to test for HVX. Clients may submit samples for testing. The test is \$12.50 if submitted through a county agent and \$17.25 if submitted directly.

Homeowners should also be aware of HVX and avoid purchasing symptomatic plants. If any hosta plants at a store look suspicious there is a chance that nearby healthy-looking plants are infected but not yet showing symptoms, especially plants of the same cultivar or from the same source. In a home planting, if a plant becomes symptomatic it can be submitted to K-State for testing. Due to the cost of testing, the homeowner may prefer simply to remove and destroy the suspicious plants. Dig them up and throw them away or burn them. The virus is not known to survive in the soil, so when the roots have all decomposed it should be safe to replant hostas in the site.

There is some good news out there. Last August, some plant health specialists and USDA representatives visited several ornamentals producers in the Netherlands, where many ornamentals (and their diseases) come from. The various groups all agreed to work together to clean up the hosta supply at its origins in Europe. (MK)

Contributors

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